Topic 06 – Hypertension / Vascular disease

January 14th, Thursday 2016

0088

Could occupational determinants impact on changes in blood pressure over a five-years follow-up? Results from the VISAT study

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Background Occupational environment is often suspected to be involved in increased Blood Pressure (BP), but asserting its causality remains uncertain.

Purpose To assess the impact of a large panel of occupational factors exposures on changes of BP over a 5-year follow-up period.

Methods 790 participants were recruited during 2001-2006 in a French cohort study. Four categories of occupational factors were investigated: physical constraints, organizational and psychosocial factors and employment-related characteristics, allowing nearly exploring 30 occupational determinants. Changes in Systolic BP (SBP) and Diastolic BP (DBP) between the two surveys were dichotomized into increased BP versus decreased or unchanged BP. Logistic regressions were performed to explain how each occupational factor interacts with changes in BP, after adjustment for several classical confounding factors. Receiver Operating Characteristic (ROC) curves were used to determine whether occupational factors could improve the prediction of BP changes.

Results No physical constraint was significantly associated with changes in BP. Among organizational factors, only particular working hour schedule had a protective effect on SBP (OR=0.72). The main effect on BP changes was obtained by psychosocial factors. Taking on several tasks at the same time, not being able to interrupt work or being exposed to an active job strain significantly predicted a high risk of an increased SBP (OR≈1.50). In contrast, occupational recognition and consideration of expressed employee opinion, tended to be associated with a protective effect (OR≈0.70). Comparing areas under the ROC curves revealed that occupational factors significantly improved the prediction of SBP changes, compared to taking into account only the classic cardiovascular risks.

Conclusion Psychosocial factors appear as the major determinants of changes of BP over time with a dual effect, whereas biomechanical occupational factors play a minor role.

The author hereby declares no conflict of interest

0579

Particularities of the epidemiology of hypertension in the elderly in Central Africa: the EPIDEMCA study

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Background The epidemiology of hypertension in the elderly is rarely reported in Africa and little is known about its specificities.

Objective To study the prevalence of hypertension and associated factors in older people in Central Africa.

Methods Individuals aged 65 years old and over living in two urban and two rural areas of the Republic of Congo (ROC) and the Central African Republic (CAR) were invited to participate into a comprehensive cross-sectional study assessing cognitive impairments and cardiovascular diseases. Demographic, clinical and biological data were collected. Hypertension was defined in case of self-reported on-going treatment and/or when averaged systolic blood pressure at rest was ≥140mmHg and/or diastolic blood pressure was ≥90mmHg.

Results Among 1990 participants (mean age=73 years; 62% females), the overall prevalence of hypertension was 61.1% (95% CI: 58.9-63.2), higher in ROC than in CAR (68.0% vs 53.7%, respectively; p<0.001) and higher in urban than in rural areas (64.7% vs 57.4%, respectively; p=0.001). Among hypertensive participants, 53.3% were unaware of their condition and only 17.3% received anti-hypertensive drug therapy. In multivariate analysis, increasing age and BMI, living in the ROC, the main lifetime occupation, presence of depressive symptoms and the number of meals per day remained significantly associated with an increased likelihood of hypertension. In contrast, smoking status, physical activity and an increasing number of stressful lifetime events were associated with a reduced likelihood for prevalent hypertension.

Conclusion Hypertension is highly prevalent in elderly people of Central Africa, and presents some particularities in relation to specific conditions in this region.

The author hereby declares no conflict of interest

0251

Prognostic value of exercise-induced left ventricular systolic dysfunction in hypertensive Algerian patients without coronary artery disease

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Introduction and objectives We sought to assess the prognostic value of exercise-induced left ventricular systolic dysfunction in hypertensive Algerian patients with normal resting echocardiography and absence of coronary artery disease.

Methods From our database of patients (military hospitals of Algeria) referred for treadmill exercise echocardiography, we identified 91 hypertensive patients with preserved resting left ventricular ejection fraction (>50%), no evidence of structural heart disease, and absence of coronary artery disease on angiography. Overall, 38 patients developed exercise-induced left ventricular systolic dysfunction (defined as a decrease in left ventricular ejection fraction below 50% at peak exercise) and 53 exhibited a normal left ventricular ejection fraction response to exercise. The mean follow-up was 6.1 (3.7) years. End points were all-cause mortality, cardiac death, heart failure, and the composite event of cardiac death or heart failure.

Results Patients who developed exercise-induced left ventricular systolic dysfunction were at higher risk of death from any cause (hazard ratio=3.4; 95% confidence interval, 1.1-10.3), cardiac death (hazard ratio=5.6; 95% CI, 1.1-29.4), heart failure (hazard ratio=8.9; 95% confidence interval, 1.8-44.2), and the composite end point (hazard ratio=5.7; 95% confidence interval, 1.7-19.0). In the multivariate analysis, exercise-induced left ventricular systolic dysfunction remained an independent predictor of both heart failure (hazard ratio=6.9; 95% CI, 1.3-37.4) and the composite event of cardiac death or heart failure (hazard ratio=4.5; 95% confidence interval, 1.2-16.0).

Conclusions In hypertensive Algerian patients patients with preserved resting left ventricular ejection fraction and absence of coronary artery disease, exercise-induced left ventricular systolic dysfunction is a strong predictor of cardiac events and may represent early hypertensive heart disease.

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